

WHAT IS CLAIMED IS:

1. A mobile device for a mobile communication system, comprising:
a case;
a communication module mounted in the case that generates heat in connection with operations; and
a heat dissipation system coupled to the communication module to reduce a temperature thereof during said operations.
2. The mobile device of claim 1, wherein said case is established with a main board therein, wherein additional components are mounted on said main board, and wherein said communication module is mounted on one side of said main board.
3. The mobile device of claim 1, wherein the heat dissipation system includes a heat exchanging part is in a direct contact with said case.
4. The mobile device of claim 1, wherein the heat dissipation system comprises a heat exchanging part is located to face toward an inside of the case that is opposite to said main board.
5. The mobile device of claim 1, wherein the heat dissipation system comprises a heat pipe coupled to the communication module that extends to outside the case.

6. The mobile device of claim 5, wherein an antenna passes through an opening in the case that includes the heat pipe.

7. The mobile device of claim 5, wherein an antenna passes through an inner portion of the heat pipe or is provided on an external surface of the heat pipe

8. The mobile device of claim 5, comprising a heat dissipating plate that thermally connects said heat pipe with the communication module.

9. The mobile device of claim 1, comprising a heat transfer part including a phase change material that thermally connects to said communication module.

10. The mobile device of claim 1, comprising a heat pipe that extends outside the case, wherein the communication module is in contact with said heat pipe, and wherein an antenna passes through an opening in the case that includes the heat pipe.

11. The mobile device of claim 1, comprising a micro-cooling unit having a refrigerant contained within a closed system that comprises,

a coolant reservoir,

a first heat exchanger coupled to the coolant reservoir configured to absorb heat through a thermal contact,

a second heat exchanger operatively coupled to first heat exchanger that is

configured to dissipate the heat,

a liquid state refrigerant flow part coupled between the second heat exchanger and the coolant reservoir, and

an insulation part between the liquid state refrigerant flow part and each of the coolant reservoir and the first and second heat changer.

12. A micro-cooling heat dissipation system, comprising:

a housing having a refrigerant contained within a closed system, wherein the closed system comprises,

a coolant reservoir,

a first heat exchanger coupled to the coolant reservoir configured to absorb heat through a thermal contact,

a second heat exchanger operatively coupled to first heat exchanger that is configured to dissipate the heat,

a liquid state refrigerant flow part coupled between the second heat exchanger and the coolant reservoir, and

an insulation part between the liquid state refrigerant flow part and each of the coolant reservoir and the first and second heat exchangers.

13. The micro-cooling heat dissipation system of claim 12, wherein the insulation part includes gas.

14. The micro-cooling heat dissipation system of claim 12, wherein liquid state refrigerant flow part comprises a plurality of grooves that separate liquid refrigerant into a plurality of channels.

15. The micro-cooling heat dissipation system of claim 12, wherein two layers of heat dissipating materials comprise the micro-cooling heat dissipation system.

16. The micro-cooling heat dissipation system of claim 15, wherein said two layers have different heat dissipating characteristics.

17. The micro-cooling heat dissipation system of claim 12, wherein the first and the second heat exchangers comprise a plurality of capillaries.

18. The micro-cooling heat dissipation system of claim 12, wherein said micro-cooling heat dissipation system is provided with a first fluid passage in which the refrigerant flows from the first heat exchanger to the second heat exchanger, and wherein the refrigerant in said micro-cooling unit flows by a cooling cycle in which evaporation of liquid refrigerant occurs at the first heat exchanger and condensation of vaporized refrigerant occurs at the second heat exchanger.

19. A mobile terminal for a mobile communication system, comprising:
a case;

a device mounted in the case that generates heat in connection with operations; and

a heat dissipation system coupled to the device to reduce a temperature thereof during said operations, wherein the heat dissipation system includes a heat transfer part including a phase change material (PCM) part that effects phase changes when a predetermined temperature is reached by the heat transferred through the contact with said device.

20. The mobile terminal of claim 19, comprising:

a micro-cooling unit including a housing having a refrigerant therein, a first heat exchanging part for absorbing the heat through a thermal contact with the phase change material part and a second heat exchanging part for dissipating the heat, wherein the first and the second heat exchanging parts comprise a plurality of capillaries.

21. The mobile terminal of claim 20, comprising a dissipating plate that thermally couples the second heat exchanging part with said case.

22. The mobile terminal of claim 19, wherein said phase change material part includes a material based on paraffin or a material based on eutectic salts.

23. The mobile terminal of claim 19, wherein the mobile terminal is a cellular phone, a personal digital assistant (PDA) or a PDA phone.

24. The mobile terminal of claim 19, wherein the heat dissipation system comprises a heat pipe coupled to the device that extends to outside the case, and wherein an antenna passes through an opening in the case that includes the heat pipe.

25. A personal digital assistant (PDA), comprising:
a display screen housed with in a case;
an input device;
an antenna;
a controller operatively coupled to the display screen, the input device and the antenna; and
a heat dissipation system coupled to the controller.